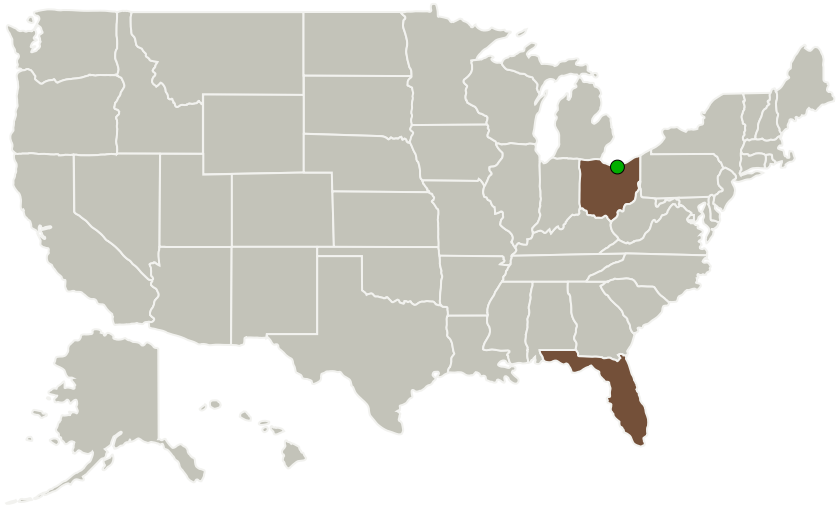
Scintillation-Hardened GPS, Phase I

Completed Technology Project (2012 - 2012)

Project Introduction

A Communications, Navigation, and Networking reConfigurable Testbed (CoNNeCT) experiment is proposed to improve the performance of GPS during geomagnetic storms. There are two primary sources of degradation during a geomagnetic event – loss of phase coherency by the receiver and abrupt path delay changes due to total electron content (TEC). By monitoring the degradation at the ISS instead of the Earth's surface, better modeling and subsequently better mitigation of the effects will be achieved. A scintillation-hardening receiver is proposed to improve the accuracy and reliability during geomagnetic storms.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
CommLargo, Incorporated	Lead Organization	Industry Women-Owned Small Business (WOSB)	Saint Petersburg, Florida
Glenn Research Center(GRC)	Supporting Organization	NASA Center	Cleveland, Ohio

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Primary U.S. Work Locations	
Florida	Ohio

Project Transitions

February 2012: Project Start

August 2012: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/140323)*

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

CommLargo, Incorporated

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

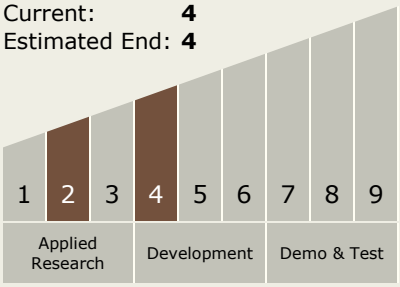
Carlos Torrez

Principal Investigator:

Donald Stephens

Technology Maturity (TRL)

Start: **2**
Current: **4**
Estimated End: **4**



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Technology Areas

Primary:

- TX05 Communications, Navigation, and Orbital Debris Tracking and Characterization Systems
  - TX05.2 Radio Frequency
    - TX05.2.3 Atmospheric Characterization and Mitigation

Target Destinations

The Moon, Mars, Outside the Solar System, The Sun, Earth, Others Inside the Solar System